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ONLINE ISSN : 1881-3984

PRINT ISSN : 1344-6606

Food Science and Technology Research

Vol. 11 (2005) , No. 1 pp.63-70

[\[PDF \(752K\)\]](#) [\[References\]](#)**Comparison of Volatile Flavour Profiles of Kidney Beans and Soybeans by GC-MS and PTR-MS**[Saskia M. van RUTH^{1\)}](#), [Lonneke DINGS^{1\)}](#), [Eugenio APREA^{1\)}](#) and [Sachiko ODAKE^{2\)}](#)*1) Department of Food and Nutritional Sciences, University College Cork**2) Nippon Veterinary and Animal Science University, Food Science and Technology*

(Received: August 23, 2004)

(Accepted: January 11, 2005)

The volatile compounds of kidney beans and soybeans were analysed by gas chromatography mass spectrometry (GC-MS) and proton transfer reaction mass spectrometry (PTR-MS). Fingerprint PTR-MS spectra of the kidney beans and soybeans showed similarities but also quantitative differences, with soybeans generally presenting higher intensities. Fifty-one compounds were identified by gas chromatography mass spectrometry, 39 in the kidney beans and 29 in the soybeans. Dynamic model-mouth/PTR-MS analysis revealed four masses predominant in both types of beans, m/z 33, 45, 59 and 73, which likely originate from methanol, ethanol, 2-propanone, and 2-butanone, respectively. The two beans differed significantly in the headspace concentrations of the masses m/z 33 and m/z 59 at various time points, with both higher in the soybeans. The four masses were released at fairly linear rates. The correlation coefficients of the concentration vs. time profile were in the range 0.874-0.992 under mouth conditions. Principal component analysis revealed that high release rates of the masses m/z 33, 59 and 73 correlated with the soybeans, whereas mass m/z 45 correlated well with the kidney beans. As a result of the quantitative differences, the proportions of the four masses differed between the two beans. For both types of beans their proportions also changed during the course of release.

Keywords: [Aroma](#), [flavour](#), [kidney beans](#), [model mouth](#), [PTR-MS](#), [soybeans](#)



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Comparison of Volatile Flavour Profiles of Kidney Beans and Soybeans by GC-MS and PTR-MS Saskia M. van RUTH, Lonneke DINGS, Eugenio APREA and Sachiko ODAKE, *FSTR*. Vol. **11**, 63-70. (2005) .

doi:10.3136/fstr.11.63

JOI JST.JSTAGE/fstr/11.63

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